

Remarks

The Examiner is thanked for the Office Action mailed 03/27/03. The election of Group I (claims 1-14) is hereby affirmed without traverse. Claims 15-26 are canceled. A one (1) month extension to respond is enclosed.

By the present amendments claim 1 has been amended to recite that in the claimed method where the pulse jet is struck, the pulse jet also “comprises a chamber and a thermoelectric or piezoelectric ejector in the chamber” in the method of striking. An ejector of one of the foregoing types is also present in claims 9 and 10 (those claims are still left as dependent claims since they specify a selection of the one or the other type of ejector recited in claim 1; thus claims 9, 10 have not been amended). Claim 11 has been similarly amended. New claim 27 is the same as originally filed claim 1 but with the added limitation “wherein no drops are dispensed while striking”. New claims 28-30 are the same as original claims 2-4 except dependent upon new claim 27. New claim 31 is the same as original claim 11 but with the added limitation “wherein no drops are dispensed while striking” (such as recited, for example, on page 13, lines 29-30 of the present application). New claims 32-34 are the same as claims 12-14 but dependent upon new claim 30 and additionally recite that “the striking improves pulse jet firing reliability” (as disclosed, for example, on page 7, lines 11-14 of the present application).

In view of the above amendments then, all claims currently under consideration require in a method where the pulse jet is struck, the additional limitation of either “wherein the pulse jet comprises a chamber and a thermoelectric or piezoelectric ejector in the chamber”, or “wherein no drops are dispensed while striking”. The rejections of the Office Action will now be discussed in sequence below.

Anticipation Rejection (Para. 8 of the Office Action)

Turning now to the rejections, the Examiner first rejected claims 1-4, 10, 11-12 under 35 U.S.C. 102(b) as being anticipated by Kutami et al. (US 6,132,035).

Claim 9 (not amended) which includes striking the chamber and “wherein the pulse jet includes a thermoelectric ejector in the chamber”, was not rejected under this rejection. Claim 10 (not amended) which includes striking the chamber and “wherein the pulse jet includes a piezoelectric ejector in the chamber”, was rejected under this rejection. As the Examiner is aware, in order to establish a case of anticipation he must point to the disclosure of each claim element in the reference. In the case of claim 10 the Examiner has not pointed to (and indeed does not even attempt to point to) any disclosure in Kutami et al. of striking the pulse jet and additionally “the pulse jet includes a piezoelectric ejector in the chamber”. Nor is there any such disclosure in Kutami et al. (Kutami et al.’s device solely striking the pulse jet without the added presence of a thermoelectric or piezoelectric ejector “in the chamber”. Accordingly, the rejection of claim 10 should be withdrawn for this reason alone. Further, claim 1 now requires the same limitation as claim 10 (or the alternative limitation of claim 9 which was not rejected under this rejection). Consequently, for the same reasons the rejection of claim 1 (and dependent claims 2-10) should now be withdrawn.

Obviousness Rejections (Paras. 11 & 12 of the Office Action)

The Examiner next rejected claims 5-8 under 35 U.S.C. 103(a) as being unpatentable over Kutami et al., and rejected claims 9, 13-14 as being unpatentable over Kutami et al. as applied on the anticipation reference and further in view of Wiktor (US 9,232,129). As pointed out above, claim 9 (not amended) includes striking the chamber and “wherein the pulse jet includes a thermoelectric ejector in the chamber”.

In considering this (or any other rejection) as the Examiner is well aware, the Examiner bears the initial burden of establishing a case of *prima facie* obviousness. This was set out, for example, by the Federal Circuit in In re Rijckaert 28 USPQ2d 1955 (Fed. Cir. 1993) @ 1956:

“In rejecting claims under 135 USC § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. (citations omitted) Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant.”

Further, in order to find obviousness, the Examiner must find a suggestion in the cited prior art to make the claimed invention and it is impermissible to engage in attempts to reconstruct the invention using the benefit of hindsight. This has been clearly stated by the Federal Circuit in, for example, In re Vaeck 20 USPQ2d 1438 (1991) @ 1442:

"Where subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under s. 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. See *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure. *Id.*"

Turning now to the references, the Examiner has not in fact pointed to any suggestion from the references to make the combination suggested by the Examiner. Furthermore, if anything, the references actually teach away from that combination.

In particular, the Examiner states that it would have been obvious to modify Kutami et al.'s device to include a thermoelectric or piezoelectric ejector (note that the rejected claims, including non-amended claim 9, require such ejector to be "in the chamber"). There is no motivation or suggestion from the references to make the combination proposed by the Examiner since as the Examiner himself points out on Page 4 of the Action, drops in Kutami et al.'s device are ejected as a result of external striker (14). There is no suggestion or motivation provided from the references as to why one would need an additional mechanism (such as the claimed piezoelectric or thermoelectric ejector) "in the chamber". Thus, the references themselves fail to provide the required motivation or suggestion and for this reason alone the present rejection should be withdrawn.

In addition to the above, Kutami et al. actually teaches away from making the combination suggested by the Examiner. In particular, in column 1, lines 14 to column 2, line 8, Kutami et al. specifically describes devices with piezoelectric or

thermoelectric ejectors in the chamber and explains what they consider to be the disadvantages of such devices (e.g. the whole head, including the piezoelectric or thermoelectric ejectors must be disposed – see for example, column 2, lines 64-67). Kutami et al. then explains (column 2, lines 11-13) that their invention is intended to overcome the problems of the foregoing prior art devices. Given this teaching, one of ordinary skill is actually led away from then trying to place a conventional piezoelectric or thermoelectric ejector back into Kutami et al.'s device (particularly when, as pointed out above, there is no need for adding such an ejector). For this additional reason, the present rejection should be withdrawn.

New Claims 27-36

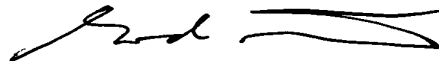
As pointed out above, these claims additionally require “wherein no drops are dispensed while striking”. The entire point of the striking in Kutami et al. is in fact to cause the drops to eject. Thus, Kutami et al. do not disclose nor suggest at least the foregoing feature. Further, Kutami et al. actually teaches away from a method where “no drops are dispensed while striking” given that it requires drops to be dispensed as a result of striking. For either of the foregoing reasons, claims 27-36 should be allowable over Kutami et al. and the other references of record.

New Claims 37-42

New claims 37, 38 are the same as originally filed claims 1, 2 while new claims 39-42 are the same as originally filed claims 11-14, except that all these new claims require in the method of striking that “the pulse jet comprises a rigid chamber”. Such is disclosed, for example, on page 7, line 16 of the present application. There is no disclosure or suggestion in Kutami et al. (or the other references) that Kutami et al.'s chamber should be “rigid” (indeed Kutami et al. relies on a flexible housing to cause drop ejection). Accordingly, new claims 37-42 should also be allowable over Kutami et al. and the other references of record.

In view of the above, it is believed that claims 1-14, 27-42 are now in condition for allowance. If the Examiner believes there are any outstanding issues that might be resolved by means of a telephone conference, he is invited to call Gordon Stewart at (650)485-2386.

Respectfully submitted,



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